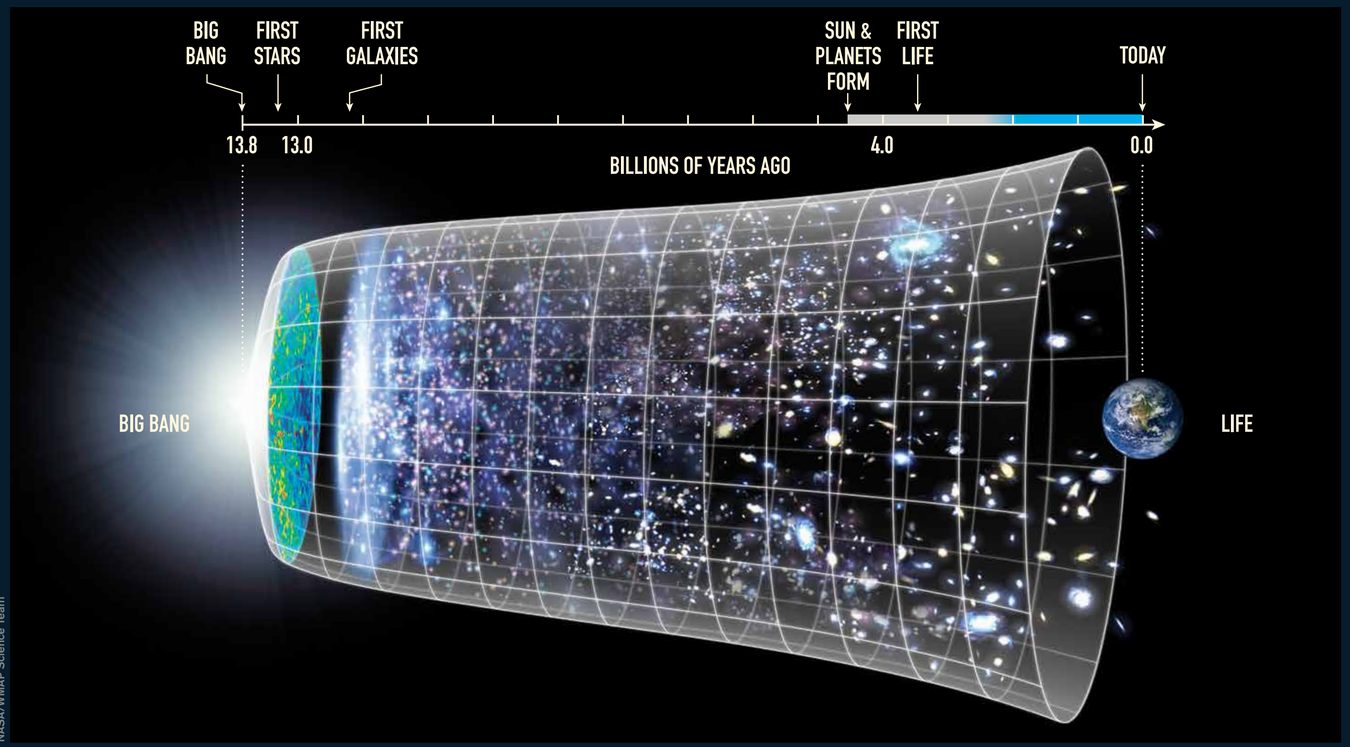
STATION 01 Goddard Initiatives

The Cosmic Progression Towards Life

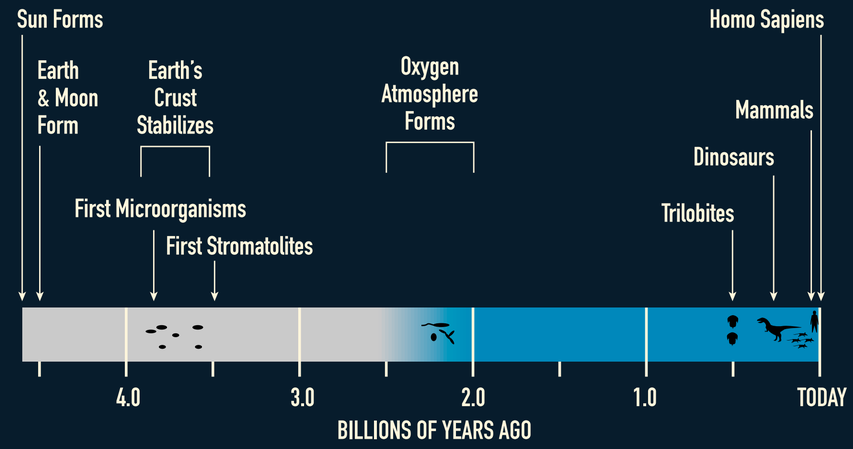
Life is the product of nearly 14 billion years of cosmic evolution. Atoms formed as the Universe cooled following the Big Bang, then stars and galaxies, planets and life. The Big Bang produced atoms of hydrogen, helium and lithium, the lightest elements. Other elements were made inside the first stars, but formation of the heavier elements required cycling through many generations of stellar birth and death. The Earth and life as we know it required this heritage – you are made of star stuff! Thus, the cosmos evolved towards greater complexity in a progression that enabled the emergence of life.



NASA/WMAP Science Team

FROM THE BIG BANG TO LIFE: This graphic illustrates the evolution of the Universe since the Big Bang. It is based in part on discoveries of the Cosmic Background Explorer and the Wilkinson Microwave Anisotropy Probe spacecraft, developed at Goddard Space Flight Center.

A Cosmic Timeline Towards Life



What exactly is astrobiology? Astrobiology is a multidisciplinary science that involves astronomy, biology, chemistry, geology and physics. Researchers of the Goddard Center for Astrobiology study the origin and formation of the building blocks of life in extraterrestrial environments, and examine whether the delivery of these primordial materials and water to the early Earth enabled the emergence and evolution of life. They also extend these studies to other planets and moons, and to other planetary systems.

DID YOU KNOW?

If the history of the Universe were compressed into one year with the Big Bang occurring on January 1st, Earth would be formed in mid-September, microorganisms in early October, multicellular life in early December, and Homo sapiens (humans) on December 31st.